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REMARKS

Claims 1-4 and 7-17 are pending in this application, claims 5-6 having been canceled above. Claims 1 and 16 are the independent claims.

Claim 1 has been amended to recite that the dielectric envelope surrounding the pressure vessel includes both a preformed dielectric sheath press-fitted around a central portion of the pressure vessel and a dielectric overmold surrounding at least end portions of the pressure vessel. Support for this limitation is provided, for example, in paragraphs 32 and 33.

Claims 1-4 and 12-15 stand rejected under 35 U.S.C. 102(b) as being anticipated by Spagnoletti et al. (U.S. Patent 6,496,626). In addition, Claims 5-11 are rejected under 35 U.S.C. 103(a) as being anticipated by Spagnoletti et al. These rejections as they apply to the pending claims are hereby traversed for at least the following reasons.

As discussed in Applicants' specification, a dielectric material is applied to the outer surface of the repeater pressure vessel to electrically isolate the pressure vessel from the surrounding seawater. While an overmolding technique may be used to form the dielectric material, one problem with the use of such a technique is that the molding process requires elevated temperatures with the molten material contacting the pressure vessel. The heat from the mold and the molten material will cause an increase in the temperature of the optical and electrical components located within the repeater. While these components may be able to withstand limited increases in temperature over a short period of time, it would in some cases be preferable to minimize the amount of heat that is conducted to them to prevent their temperatures from rising excessively. This problem is exacerbated because, as set forth in certain of the dependent claims (e.g., claims 12-13), the overmolding process can be applied to ultra-small form-factor repeaters, which can readily conduct heat, particularly since the repeaters are generally designed to efficiently dissipate thermal energy that is generated by internal components such as pump sources and zener diodes.

To alleviate the problem caused by excessive heat, in the present invention as set forth in claim 1 only a portion of the pressure vessel is overmolded. The overmolded

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portion will reside relatively far from the location of the internal components. For example, in the repeater depicted in FIG. 1, the temperature-sensitive components are located within the cylindrical housing. If in this case only the end caps 120₁ and 120₂ are overmolded and not the cylindrical housing 110, the heat conducted from the end caps through the cylindrical housing and transferred to the internal components can be reduced. To electrically isolate the cylindrical housing 110, a dielectric sheath may be press-fitted around it prior to overmolding the end caps 120₁ and 120₂. This feature of the invention is set forth in claim 1 as amended by reciting that the dielectric envelope includes a *preformed dielectric sheath press-fitted around a central portion of the pressure vessel and a dielectric overmold surrounding at least end portions of the pressure vessel.*

Spagnoletti et al. recites at column 11, lines 2-5 that “the entire housing may be coated with a watertight and electrically insulating external layer 640 made of polyethylene, or in a pre-moulded heat shrinkable jacket made of a material such as polyolefin.”

As previously noted, claim 1 as amended recites that the dielectric envelope surrounding the pressure vessel includes both a preformed dielectric sheath press-fitted around a central portion of the pressure vessel and a dielectric overmold surrounding at least end portions of the pressure vessel. In contrast, Spagnoletti et al. discloses the use of a coating *or* a heat shrinkable jacket, but not both. That is, Spagnoletti et al. fails to disclose the use of an overmold surrounding one portion of the housing and a preformed dielectric sheath surrounding another portion of the housing.

For at least the foregoing reasons it is respectfully submitted that independent claim 1 and the claims that depend therefrom are patentable over the cited reference.

In connection with claims 12, the Examiner states that “The use of the term “adapted to” in claims 12-15 recites no structure that supports the functional limitations that they recite, and as such, they set forth no structure that defines over Spagnoletti et al. as applied to claims 1 and 3.” Applicants respectfully disagree that the term “adapted to” fails to reflect a structural limitation.

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As set forth in MPEP 2173.05(g):

A functional limitation is an attempt to define something by what it does, rather than by what it is (e.g., as evidenced by its specific structure or specific ingredients). There is nothing inherently wrong with defining some part of an invention in functional terms. Functional language does not, in and of itself, render a claim improper. *In re Swinehart*, 439 F.2d 210, 169 USPQ 226 (CCPA 1971).

Moreover, as further noted in MPEP 2173.05(g), in a claim that was directed to a kit of component parts capable of being assembled, the Federal Circuit held that limitations such as "members adapted to be positioned" and "portions . . . being resiliently dilatable whereby said housing may be slidably positioned" serve to precisely define present structural attributes of interrelated component parts of the claimed assembly. *In re Venezia*, 530 F.2d 956, 189 USPQ 149 (CCPA 1976). Accordingly, the Federal Circuit has expressly approved the use of the term "adapted to" for the purpose of defining structural attributes.

Claim 12 recites that the pressure vessel is a pressure vessel adapted for an undersea optical fiber cable joint. As discussed in the specification, given the relative small dimensions of cable joints, such a pressure vessel defines an ultra-small form factor housing. Applicants submit that the Examiner should indeed recognize that this limitation does indeed set forth structure that may be used to distinguish over Spagnoletti et al., as required by MPEP 2173.05(g). Moreover, since Spagnoletti et al. does not disclose that its repeater may be housed in a pressure vessel adapted from an undersea optical fiber cable joint, Applicants submit that claim 12 is patentable over Spagnoletti et al. for this reason in addition to, and independent from, those reasons presented above in connection with claim 1. Claim 13 is believed to be allowable for this additional reason as well.

Newly added independent claim 17 is believed to be allowable for at least the same reasons presented above in connection with claim 1.

Conclusion

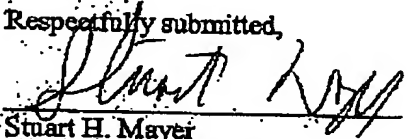
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In view of the foregoing, it is believed that the application is now in condition for allowance and early passage of this case to issue is respectfully requested. If the Examiner believes there are still unresolved issues, a telephone call to the undersigned would be welcomed.

Fees

If there are any fees due and owing in respect to this amendment, the Examiner is authorized to charge such fees to deposit account number 50-1047.

Respectfully submitted,


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I hereby certify that this correspondence and any document referenced herein is being sent to the United States Patent and Trademark office via Facsimile to: 571-273-8300 on January 31, 2006.

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